

REMARKS

Claims 12-65 are pending in the application.

By the foregoing Amendment, claims 12, 14, 16-19, 21, 22, 24, 26-28, 30-37, 39-43, 45-56, 58, and 60-62 are amended. Claims 1-11 were previously cancelled without prejudice or disclaimer.

The claims have been amended to recite elements associated with functions in means-plus-function format, in order to come within the provisions of 35 U.S.C. § 112, paragraph 6, to correct miscellaneous grammatical and typographical errors, to delete the parenthetical reference characters, and as discussed more fully below, to better define the invention relative to the prior art.

The Specification has been amended to add or amend headings and to add accompanying content for some of the headings; to amend paragraph [0003] to correct a typographical error and to incorporate a portion of the caption deleted from Figure 1; to amend paragraph [00015] to use more idiomatic language, to add a description corresponding to the caption that has been canceled from Figure 4, and to add a description of the order in which the various lasers are coupled in, as shown in Figure 4. The drawings have been amended as described above.

These changes are believed not to introduce new matter, and entry of the Amendment is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

Objection to the Disclosure

In paragraph 4 of the Office Action, the disclosure was objected to because the headings provided in 37 CFR § 1.77(b) and content for some of the headings were missing. This objection is believed to be overcome by the above amendments to the Specification.

Objection to the Specification

In paragraph 5 of the Office Action, the Specification was objected to as failing to provide proper antecedent basis for the at least one glass fiber for feeding in excitation light recited in claims 46-48. This objection is overcome by the amendments to the Specification.

This feature of the invention is described in the caption to Figure 4 as originally filed, a certified translation of which is submitted herewith. Paragraph [00015] of the Specification has accordingly been amended to incorporate the description originally provided in Figure 4. See MPEP 608.01(I). It is noted that claims 46-48 also have been amended to change “glass” to “optic” for consistency with the caption to Figure 4.

Objection to the Drawings

In paragraph 6 of the Office Action, the drawings were objected to under 37 C.F.R. §1.83(a) as failing to show the at least one glass fiber for feeding in excitation light recited in claims 46-48. This objection is overcome by the amendments to the Specification and Figure 4.

As discussed above, the Specification has been amended to incorporate the description originally provided in Figure 4. See MPEP 608.01(l). In addition, Figure 4 has been amended to add reference numeral F denoting the optic fibers.

Objection to the Claims

In paragraph 7 of the Office Action, claims 21, 40, and 53 were objected to due to an extra period in claim 21, line 1, recitation of “unvapourized” instead of “vapourized” in claim 40, line 2, and lack of antecedent basis for “the acousto-optical elements” in claim 53, lines 1-2. Applicant thanks the Examiner for pointing out these informalities. The objections are believed to be overcome by the above amendments to claims 21, 40, and 53, and to claim 37, from which claim 40 depends.

Rejection under 35 U.S.C. § 112, ¶ 1

In paragraph 9 of the Office Action, claim 56 was rejected under section 112, paragraph 1, as failing to comply with the written description requirement, on the ground that no disclosure is made of successively feeding the radiation of the plurality of lasers into the microscope beam path in the direction of the microscope optics in a sequence based on decreasing wavelength. This rejection is overcome by amendment of the Specification to provide a description of the arrangement shown in Figure 4.

In support of the amendment to the Specification, it is noted that Figure 4 of the application as filed clearly shows a fluorescence microscope in which the radiation from a plurality of laser

sources is fed successively into the microscope beam path. Further, it is respectfully submitted that Figure 4 unambiguously shows that, viewed in the direction of the microscope optics, the radiation of the infrared-laser (IR) is coupled in first, after which the visible radiation of the visible-laser (VIS) is coupled in and, subsequently, the ultraviolet-laser (UV) is coupled into the beam path. In the microscope of Figure 4, therefore, it is an inherent characteristic that the radiation of the plurality of lasers is successively fed into the microscope beam path in a sequence based on decreasing wavelength when viewed in the direction of the microscope optics.

The Office Action also indicated that “no reasoning or functional criticality is given as to why such a sequence is required for the claimed fluorescence microscope.” In response to this comment, it is noted that, as a result of this arrangement, advantages with respect to the shape of the beam pulses can be achieved.

Rejections under 35 U.S.C. §§ 102 and 103

In paragraphs 11, 13, and 14 of the Office Action, claims 12-18, 20, 22-32, 37-39, 43-45, 53-55, 57, and 63-65 were rejected under section 102(b) as being anticipated by Kobayashi, claims 19, 21, 33-36, 40-42, 46-48, and 51 were rejected under section 103(a) as being unpatentable over Kobayashi, and claims 50, 52, 56, and 58-62 were rejected under section 103(a) as being unpatentable over Kobayashi in view of Asakawa. These rejections are believed to be overcome by the amendments to independent claims 12, 22, 24, 28, 37, 43, and 58.

As recited in amended claims 12, 22, 24, 28, 37, 43, and 58, the invention is directed to a microscope that includes light diffracting means (claims 12, 22, 24, and 58) or acousto-optical means

(claims 28, 37, and 43) for separating excitation light and emission light, wherein the light diffracting means or the acousto-optical means is/are arranged in such a way with respect to the beam path and the detector means that only undiffracted light can be detected by the detector means.

In contrast to the claimed invention, Kobayashi does not teach or suggest a fluorescence microscope having light diffracting means or acousto-optical means for separating excitation light and emission light. More specifically, in the microscope of Kobayashi, the acousto-optical deflector (AOD) does not function to separate excitation and emitted light, but rather, to scan the beam over a range of angles. The AOD is so arranged that excitation light too, whether transmitted or reflected, can in principle be detected by the photosensor 26. *See* column 6, lines 39-44 of Kobayashi.

The separation of excitation and fluorescence light is only optionally brought about in Kobayashi's microscope by a filter 25 or a dichroic mirror 5. *See* Figures 1, 3, and 10 of Kobayashi.

Because the diffracting element in Kobayashi does not function to separate excitation and emission light, Kobayashi is fundamentally different from the invention as recited in amended claims 12, 22, 24, 28, 37, 43, and 58, nor does Kobayashi suggest this function.

It is therefore respectfully submitted that the invention as recited in amended claims 12, 22, 24, 28, 37, 43, and 58, and in the claims depending therefrom, is patentable over Kobayashi.

With respect to Asakawa, it does not teach the feature missing from Kobayashi of light diffracting means or acousto-optical means for separating excitation light and emission light, wherein the light diffracting means or the acousto-optical means is/are arranged in such a way with respect to the beam path and the detector means that only undiffracted light can be detected by the

detector means. Therefore, the combination of Kobayashi and Asakawa does not teach or suggest the invention as recited in claims 50, 52, 56, and 58-62.

Further, the figure in Asakawa's abstract, in contrast to the invention as recited in claim 58, clearly does not teach or suggest an optical setup in which a plurality of light-diffracting means arranged on a common optical axis.

In view of the foregoing, it is respectfully submitted that the invention as recited in claims 12, 22, 24, 28, 37, 43, and 58, and in the claims depending therefrom, is patentable over the cited prior art.

Conclusion

All objections, requirements, and rejections have been complied with, properly traversed, or rendered moot. Thus, it now appears that the application is in condition for allowance. Should any questions arise, the Examiner is invited to call the undersigned representative so that this case may receive an early Notice of Allowance.

Favorable consideration and allowance are earnestly solicited.

Respectfully submitted,

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